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10

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/912,498 | 07/26/2001 | Hironori Fujioka | 211606US3DIV | 7874 |
| 22850 | 7590 | 03/03/2004 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | ANDREWS, MELVYN J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1742 | |

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-------------------------------|--------------------------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/912,498 | FUJIOKA ET AL. <i>[Signature]</i> |
| | Examiner Melvyn J. Andrews | Art Unit 1742 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM

THE MAILING DATE OF THIS COMMUNICATION.

Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed

- after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 11/14/2003.
 2b) This action is non-final.
 2a) This action is FINAL.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 9-13 and 23-29 is/are pending in the application.
 4a) Of the above claim(s) 11-13 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 9, 10 and 23-29 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 14 October 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) The translation of the foreign language provisional application has been received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
 4) Interview Summary (PTO-413) Paper No(s). 2122004.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9, 10 and 23 to 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The step of "continuously forming a bed covering layer... with insulating material particles" as in Claim 9 and the step of "continuously forming a bed covering layer by continuously charging insulating material..." as in Claim 23 is new matter.

Response to Arguments

Applicant's arguments filed October 17, 2003 have been fully considered but they are not persuasive. The expression "continuously" appears only once in the specification and does not refer to charging insulating material.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 9, 10, 23, 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotraba et al (US 5,186,741). Kotraba et al discloses a direct

reduction process in a rotary hearth furnace comprising forming green pellets which are fed over a layer of burnt pellets , granular limestone or granular dolomite on a rotary hearth furnace which conveys the pellets first through a drying and coking zone in which the pellets are dried then travel through a reduction zone and ultimately carried to a discharge zone thereby producing un-fused pellets of reduced iron (col.1, lines 49 to 64) but Kotraba et al does not describe the layer of burnt pellets, granular limestone or granular dolomite as being formed immediately before charging the green pellets but since the green pellets were fed onto the layer it is obvious that the layer was formed before feeding the green pellets into the rotary hearth furnace; furthermore, the step of drying does not intervene between the step of feeding a green pellet and the step of having formed a layer, therefore the Kotraba et al formation of the layer is considered as having been formed immediately before charging the green pellets .

With respect to the step of "continuously forming a bed covering layer ...with insulating material particles" as in Claim 9 and the step of "continuously forming a bed covering layer by continuously charging insulating material..." as in Claim 23 these limitations do not patentably distinguish the claimed processes from the Kotraba et al process because it has been held that it is well within the expected skill of the technician to operate a process continuously. In re Dilnot 138 USPQ 248, page 752 .

With respect to Claim 27 Kotraba et al discloses forming green pellets approximately 12 to 15 mm in diameter which within the claimed range.

With respect to Claim 28 Kotraba et al discloses that "no more 3 to 4 green pellets" in thickness overlaps the claimed single or double layer.

Claims 25 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Kotraba et al as applied to claim 23 above, and further in view of Hanewald et al (US 4,597,564). Kotraba et al does not disclose the size of the granular dolomite used to form the layer or the depth of the layer but Hanewald et al discloses loose granular refractory material comprising dead burned dolomite having "a grain size of 100% minus 1 cm" to form an insulative layer it would have been obvious to one of ordinary skill in the art at the time to form the Kotraba et al layer with "dead burned dolomite grain" (col.3, lines (41 to 46) such as disclosed by Hanewald et al because Kotraba et al requires "granular dolomite" : furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the depth of the Kotraba et al layer formed from a refractory material such as "dead burned dolomite having "a grain size of 100% minus 1 cm" since the thickness of the insulation is a result effective variable with respect to damaging the hearth as evidenced by Hanewald (col.1, lines 10-65) In re Boesch 205 USPQ 215 .

With respect to the step of "continuously forming a bed covering layer by continuously charging insulating material particles" this limitation is additionally obvious in view of Hanewald which discloses "that additional grain is fed into the pellet feeding point 15 all while hearth 11 is rotating" (col.3, lines 36 to 53) which is equivalent to the claimed step of "continuously forming a bed covering layer by continuously charging insulating material particles"

Claims 9, 10 and 23 to 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotraba et al in view of Hanewald et al as applied to claims 9, 10

and 23 to 29 above, and further in view of German patent No.34 21 878 A1 English Translation. The '878 patent (Translation) claims a method for the continuous production of pig iron from iron containing materials in the form of green pellets, briquettes, scabs or other green slugs are fed to a traveling grate and preheated, dried and reduced to sponge iron fed to a coal gasification reactor therein smelted with a continuous outflow of iron and slag (Translation page 1, lines 14 to 23) and further characterized in that before feeding the slugs to the travelling grate a sintered cake of limestone or dolomite is applied in a layer (Translation page 2, lines 6 to 9) and further discloses "Theses slugs are continuously fed to a traveling grate 8... First limestone or dolomite is supplied to the travelling grate and in this way a coat 9 is formed thereon . Afterwards a layer of slugs 7 is brought continuously into the preliminary heating and drying chamber 10 with the travelling grate 8 (Translation page 6, lines 13 to 17 and the Figure), it would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the Kotraba et al process in a continuous manner in a rotary hearth furnace, which is moving, in view of German '878 patent method is carried out continuously on a travelling hearth furnace which is also moving in order to avoid the disadvantages of using a shaft furnace (Page 2, line 33 to page 3, line 23).

Election/Restrictions

Claims 11 to 13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on June 26, 2003 and November 4, 2003 are in compliance with the provisions of 37 CFR 1.97. Accordingly, these information disclosure statements are being considered by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvyn J. Andrews whose telephone number is (571)272-1239. The examiner can normally be reached on 8:00A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

MELVYN ANDREWS
PRIMARY EXAMINER

mja
January 22, 2004

Melvyn Andrews